

CLAIMS

What is claimed is:

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1. A pharmaceutical composition for treatment of a mammalian metastatic tumor including a population of cells which overexpress tyrosine kinase EphA2 having a peptide sequence defining at least one extracellular epitope of EphA2, said composition comprising a compound that specifically interacts with the extracellular epitope of EphA2 in an amount effective to reduce metastatic proliferation of said tumor, and a pharmaceutically acceptable carrier therefor.
 - 10 2. The composition of claim 1 wherein the compound is an antibody.
 3. The composition of claim 2 wherein the antibody is a monoclonal antibody.
 4. The composition of claim 3 wherein the antibody is the monoclonal antibody B2D6.
 - 15 5. The composition of claim 2 wherein the antibody is conjugated to a cytotoxic agent.
 6. A method of treatment of a patient having a metastatic tumor comprising a population of cells that overexpress EphA2, said method comprising the step of administering a therapeutically effective amount of a compound that targets
20 EphA2.
 7. The method of claim 6 wherein the compound is an antibody having specificity for an extracellular epitope of EphA2.
 8. The method of claim 7 wherein the antibody is a monoclonal antibody.
 - 25 9. The method of claim 8 wherein the antibody is produced from a hybridoma cell line identified as B2D6.
 10. The method of claim 7 wherein the antibody selectively binds to metastatic cells.
 11. The method of claim 10 wherein the antibody reduces
30 proliferation of metastatic tumor cells.
 12. The method of claim 6 wherein the population of cells forms at least a portion of a cancer tumor selected from the group consisting of breast, prostate,

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lung, and colon cancer tumors.

13. The method of claim 12 wherein the cancer tumor is a prostate cancer tumor.

14. The method of claim 6 wherein the compound is an antisense oligonucleotide that affects EphA2 expression.

15. A method for detecting the presence of metastatic cells in a cell population comprising

providing an antibody specific to an extracellular epitope of EphA2,

binding a detectable label to the antibody,

providing a cell sample,

incubating the cell sample with the labeled antibody,

removing unbound antibody from the cell sample, and

detecting the presence of the label.

16. A method of producing an antibody which inhibits the proliferation of metastatic tumor cells comprising injecting tyrosine phosphorylated proteins into lymph nodes of a mammal,

harvesting lymph node cells from the mammal,

fusing the lymph node cells with myeloma cells to form hybridomas,

selecting at least one hybridoma producing an antibody which specifically binds to an extracellular epitope of EphA2, and isolating said antibody.

17. The method of claim 16 wherein the myeloma cells are Bcl-overexpressing.

18. The method of claim 16 wherein the tyrosine phosphorylated proteins comprise EphA2.

19. The antibody produced by the method of claim 16.

20. A pharmaceutical composition for treatment of a mammalian metastatic tumor, said composition comprising a compound that interferes with EphA2 function in an amount effective to reduce metastatic proliferation of said tumor, and a pharmaceutically acceptable carrier therefor.

21. The pharmaceutical composition of claim 20 wherein the

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compound is an agonist.

22. The pharmaceutical composition of claim 21 wherein the compound comprises a peptide sequence defining an extracellular domain of EphrinA1.

5 23. The pharmaceutical composition of claim 22 wherein the peptide sequence is linked to a second peptide sequence defining immunoglobulin heavy chain.

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